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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09 976,077	10-15-2001	Tohru Kimura	02860.0691	1552

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EXAMINER

THOMPSON, TIMOTHY J

ART UNIT	PAPER NUMBER
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2873

DATE MAILED: 08/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/976,077		<b>Applicant(s)</b> KIMURA ET AL. <span style="float: right;">OK</span>	
	<b>Examiner</b> Timothy J Thompson		<b>Art Unit</b> 2873	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☐ Responsive to communication(s) filed on \_\_\_\_.

2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) 1-202 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.

5) ☒ Claim(s) 1-17, 32-92, 102-133, 149-157, 168-185 and 187-2002 is/are allowed.

6) ☒ Claim(s) 18-20, 22-24, 27, 28, 71, 72, 93, 98, 134, 141-146, 158-160, 163, 164 and 186 is/are rejected.

7) ☒ Claim(s) 21, 25, 26, 29-31, 99-101, 135-140, 147, 148, 161, 162, 165- 167 is/are objected to.

8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 15 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All   b) ☐ Some \*   c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6) <input type="checkbox"/> Other:
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## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18-20, 22-24, 27, 28, 71, 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. (U.S. Patent No. 6,058,095) in view of Maruyama (U.S. Patent No. 6,191,889).

Regarding claim 18, Yamamoto et al. discloses a first lens having a positive refractive power (fig 1, 3); and a second lens having a positive refractive power (fig 1, 4); wherein the first lens and the second lens are aligned in this order from a light source side of the objective lens (fig 1), and  $WD/F = .05/1.83 = .027$  (table 1 and the equation on col 9, line 56). Yamamoto et al. does not disclose the first lens and the second lens are respectively made of a plastic. However Maruyama discloses the objective lens is made from plastic (abstract). It would have been obvious to one skilled in the art the use plastic for the objective lens as shown by Maruyama, in the optical pickup lens of Yamamoto et al., since as shown by Maruyama, plastic lenses are commonly used so as to lighten the lens.

Regarding claim 19, Yamamoto et al. discloses  $NA > .70$  (col 4, line 23).

Regarding claim 20, Yamamoto et al. discloses  $NA > .80$  (col 4, line 33).

Regarding claims 22 and 23, Yamamoto et al. discloses  $f1/f2 = 1.68$  (table 1).

Regarding claim 24, Yamamoto et al. discloses  $(r2 + r1)/(r2 - r1) = 2.3$  (table 1).

Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al.(U.S. Patent No. 6,058,095) in view of Maruyama(U.S. Patent No. 6,191,889) as applied to claim 18 above, and further in view of Hanzawa et al.(U.S Patent No. 5,142,409).

Regarding claim 27 and 28, Yamamoto et al. does not specifically disclose wherein when a using wave length is 500 nm or less, the objective lens is made of a material whose internal transmittance at a thickness of 3 mm in a region of the using wavelength is not smaller than 850 or wherein the objective lens is made of a material whose internal transmittance at a thickness of 3 mm is not smaller than 900. However, Hanzawa et al. discloses using wave length is 500 nm or less, the objective lens is made of a material whose internal transmittance at a thickness of 3 mm in a region of the using wavelength is not smaller than 850 or wherein the objective lens is made of a material whose internal transmittance at a thickness of 3 mm is not smaller than 900(abstract). It would have been obvious to one skilled in the art the use materials with the transmittance properties detailed above as shown by Hanzawa et al. , in the optical pickup lens of Yamamoto et al., since as shown by Hanzawa et al., materials with the transmittance properties detailed above are commonly used for objective lenses so as to pass the maximum amount of light through the lens.

Claim 71 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al.(U.S. Patent No. 6,058,095) in view of Maruyama(U.S. Patent No. 6,480,344) and Hanzawa et al.(U.S Patent No. 5,142,409).

Regarding claim 71, Yamamoto et al. discloses a first lens having a positive refractive power(fig 1, 3); and a second lens having a positive refractive power(fig 1, 4); wherein the first lens and the second lens are aligned in this order from a light source side of the objective lens(fig 1). Yamamoto et al. does not specifically disclose wherein when a using wave length is 500 nm or less,

the objective lens is made of a material whose internal transmittance at a thickness of 3 mm in a region of the using wavelength is not smaller than 850 or wherein the objective lens is made of a material whose internal transmittance at a thickness of 3 mm is not smaller than 900. However, Hanzawa et al. discloses using wave length is 500 nm or less, the objective lens is made of a material whose internal transmittance at a thickness of 3 mm in a region of the using wavelength is not smaller than 850 or wherein the objective lens is made of a material whose internal transmittance at a thickness of 3 mm is not smaller than 900(abstract). It would have been obvious to one skilled in the art the use materials with the transmittance properties detailed above as shown by Hanzawa et al. , in the optical pickup lens of Yamamoto et al., since as shown by Hanzawa et al., materials with the transmittance properties detailed above are commonly used for objective lenses so as to pass the maximum amount of light through the lens. Additionally Yamamoto et al. does not disclose a ring shaped diffractive structure. However, Maruyama discloses a ring shaped diffractive structure on an objective lens(fig 1a-c). It would have been obvious to one skilled in the art to place a diffractive ring on the objective lens as shown by Maruyama, in the optical pickup lens of Yamamoto et al., since as shown by Maruyama, diffractive surfaces are commonly placed on objective lenses so as to allow different wavelength to diffracted differently thus allowing the use of two kinds of optical discs.

Claim 72 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al.(U.S. Patent No. 6,058,095) in view of Maruyama(U.S. Patent No. 6,480,344).

Regarding claim 72, Yamamoto et al. discloses a first lens having a positive refractive power(fig 1, 3); and a second lens having a positive refractive power(fig 1, 4); wherein the first lens and the second lens are aligned in this order from a light source side of the objective lens(fig 1),  $(r_2 + r_1)/(r_2 - r_1) = 2.3$ (table 1). Yamamoto et al. does not disclose a ring shaped diffractive structure. However, Maruyama discloses a ring shaped diffractive structure on an objective

lens(fig 1a-c). It would have been obvious to one skilled in the art to place a diffractive ring on the objective lens as shown by Maruyama, in the optical pickup lens of Yamamoto et al., since as shown by Maruyama, diffractive surfaces are commonly placed on objective lenses so as to allow different wavelength to diffracted differently thus allowing the use of two kinds of optical discs.

Claim 186 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura et al.(U.S. Patent No. 6,452,880) in view of Kim et al.(U.S. Patent No. 6,590,851), Maruyama(U.S. Patent No. 6,480,344) and Komma et al.(U.S. Patent No. 5,644,413).

Regarding claim 186, Kawamura et al. discloses a light converging optical system including a coupling lens (fig 1, 18) to change a divergent angle of a divergent light flux emitted from the light source(fig 3, 601, 701) and an objective lens(fig 3, 200) to converge the light flux having passed through the coupling lens onto a recording plane through a transparent substrate of an optical information recording medium(fig 1, 21); a photo detector(fig 1, 15) for detecting a reflected light beam from the recording plane and ring-shaped diffractive structure formed on at least one optical surface of optical element constituting the light converging optical system;. Kim et al. does not specifically disclose a ring shaped diffractive structure or; a first drive apparatus for driving the objective lens in an optical axis direction or a direction perpendicular to the optical axis for converging the light flux onto the recording plane; a second drive apparatus for driving at least one lens group of the coupling lens in the optical axis direction.

Regarding the diffractive surface, Maruyama discloses a ring shaped diffractive structure on an objective lens(fig 1a-c). It would have been obvious to one skilled in the art to place a diffractive ring on the objective lens as shown by Maruyama, in the optical pickup lens of Kim et al., since as shown by Maruyama, diffractive surfaces are commonly placed on objective lenses so as to allow different wavelength to diffracted differently thus allowing the use of two kinds of optical discs.

Regarding the drive apparatuses, Komma et al. discloses a first drive apparatus for driving the objective lens in an optical axis direction or a direction perpendicular to the optical axis for converging the light flux onto the recording plane; a second drive apparatus for driving at least one lens group of the coupling lens in the optical axis direction(col 7, lines 50-55). It would have been obvious to one skilled in the art to use a first and second driving apparatus which driving the objective lens in an optical axis direction or a direction perpendicular to the optical axis for converging the light flux onto the recording plane; a second drive apparatus for driving at least one lens group of the coupling lens in the optical axis direction as shown by Komma et al., in the optical pickup lens of Kim et al., since as shown by Komma et al., a drive mechanism which driving the objective lens in an optical axis direction or a direction perpendicular to the optical axis for converging the light flux onto the recording plane; a second drive apparatus for driving at least one lens group of the coupling lens in the optical axis direction is commonly used in pickup apparatuses for both tracking and focusing the coupling lens and the objective lens.

Regarding the coupling lens being two lens group wherein the second driving apparatus displaces at least one lens group constituting the coupling lens in the optical axis direction so that a variation of a spherical aberration generated at each optical surface of the light converging optical system. Kim et al. discloses coupling lens being two lens group(fig 3, 400) wherein the second driving apparatus displaces at least one lens group constituting the coupling lens in the optical axis direction so that a variation of a spherical aberration generated at each optical surface of the light converging optical system(col 2, lines 53-60, since Kim et al. teaches using an additional actuator for adjusting the distance between the two lens to correct for spherical aberrations). It would have It would have been obvious to one skilled in the art to at least one lens group constituting the coupling lens in the optical axis direction so that a variation of a spherical aberration generated at each optical

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surface of the light converging optical system of Kim et al., in the optical pickup of Kawamura et al., since as shown by Kim et al. it would have been obvious to use a coupling lens which has two lens since this allows for both condensing and diverging power(kim col 4, lines 63-65) and to adjust the distance between the coupling lens and the objective lens so as to correct for spherical aberrations.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 93-98, 134, 141-146, 158, 159, 160, 163, 164 are provisionally rejected under the judicially created doctrine of double patenting over claims 1-48 of copending Application No. 2002/0012313. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows:



Regarding claim 93, 2002/0012313 discloses a light source; an objective lens to converge a light flux emitted from the light source onto an information recording plane through a transparent substrate of an optical information recording medium, a coupling lens provided between the light source and the objective lens, wherein an axial chromatic aberration of the coupling lens is corrected excessively such that a focal length is made longer for a wavelength shorter by 10 nm than the used wavelength; wherein a change of the spherical aberration generated at each optical surface of the light converging optical system is corrected by displacing the coupling lens in the optical axis direction(claim 1, claim 23) .

Regarding claim 94-98, 2002/0012313 discloses a change of the spherical aberration is corrected by displacing the coupling lens in the optical axis direction in accordance with a slight difference in the wavelength of the light source, a slight difference in the thickness of the transparent substrate of the optical information recording medium , the change in temperature and humidity(claim 2 and inherently corrects for aberrations associated to the lens structure and claim 21).

Regarding claim 134, 2002/0012313 discloses a coupling lens to convert a divergent angle of a divergent light flux emitted from a light source; and an objective lens to light converge the light flux having passed through the coupling lens onto an information recording plane through a transparent substrate of the optical information recording medium, wherein ring-shaped diffractive structure is formed on at least one optical surface of an optical element constituting the light converging optical system, and the coupling lens comprises a two lens group, and at least one lens group constituting the coupling lens is moved along an optical axis direction such that a variation of the spherical aberration generated at each optical surface of the light converging optical system is corrected(claims 41, 45).

Regarding claim 141-146, 2002/0012313 discloses a change of the spherical aberration is corrected by displacing the coupling lens in the optical axis direction in accordance with a slight

difference in the wavelength of the light source, a slight difference in the thickness of the transparent substrate of the optical information recording medium, the change in temperature and humidity(claim 2 and inherently corrects for aberrations caused by the phenomena associated by the lens structure and claim 12 and claim 21).

Regarding claim 158, 2002/0012313 discloses A coupling lens which changes a divergent angle of a divergent light flux emitted from a light source for recording and/or reproducing of an optical information recording medium and makes the light flux to enter into an objective lens, comprising: the coupling lens having an axial chromatic aberration excessively corrected so that a focal length becomes longer for a wavelength which is 10 nm shorter than a using wavelength(claim 46).

Regarding claim 159, 2002/0012313 discloses wherein the coupling lens is a single lens which has at least one aspherical surface whose radius of curvature becomes larger with distance from the optical axis and has at least one surface shaped in a diffractive surface structured by a plurality of coaxial ring-shaped steps(claim 13).

Regarding claim 160, 2002/0012313 discloses a surface at the light source side is a diffractive surface which has a spherical shape macroscopically and a surface at another side far from the light source is a aspherical surface whose radius of curvature becomes larger with distance from the optical axis.

Regarding claim 163, 2002/0012313 discloses the coupling lens has the structure of two elements in one group in which a positive lens having a relatively larger Abbe's number and a negative lens having a relatively smaller Abbe's number are cemented(claim 17).

Regarding claim 164, 2002/0012313 discloses the coupling lens has at least one aspherical surface and satisfies the following conditions;  $v_{dp} > 55.0$  and  $v_{dn} < 35.0$ (claim 13, claim 18).

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

***Allowable Subject Matter***

Claims 21, 25, 26, 29-31, 99-101, 135-140, 147, 148, 161, 162, 165-167 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. With the important features being, the mathematical limitations.

Claims 1-17, 32-92, 102-133, 149-157, 168-185, 187-202 are allowed.

The following is an examiner's statement of reasons for allowance: The prior art taken either singularity or in combination fails to anticipate or fairly suggest the limitations of the independent claim, in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claims 11, 32, 56, 67, 68, 102, 146, 149, 185, 187, 188 with the important features being the mathematical limitations. Therefore claims 1-17, 32-92, 102-133, 149-157, 168-185, 187-202 are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Thompson whose telephone number is (703) 305-0881. If the examiner can not be reached his supervisor, Georgia Epps, can be reached on (703) 308-4883.

T.J.T.

8/9/03

A handwritten signature in cursive script, appearing to read "Tim Slayton". The signature is written in dark ink on a white background.